

PATENT APPLICATION

Amendment

Claims 1-16 (canceled)

Claim 17 (previously amended) A method of manufacturing a composite part on a hybrid tool, comprising:

coating a face sheet of a hybrid tool with a release agent, said face sheet made from a composite material made on a master tool, the composite material having a mold surface the same shape and size as a surface of said part;

laying up plies of resin impregnated fabric material on said face sheet to a desired thickness;

debulking said plies in a vacuum bag with gas pressure, and curing said resin to form said part on said face sheet;

placing said hybrid tool on a machine tool bed at a position designated in a machine tool program using positioning devices;

probing reference features on said hybrid tool to accurately establish the position of said face sheet relative to a home position of the machine tool, said reference features having been transferred from corresponding reference features on said master tool;

normalizing said machine tool part program to correspond to the actual position of the hybrid tool on the machine tool bed as determined by said probing of said hybrid tool reference features;

operating the machine tool to rotate a cutting tool while following a cutting path along and within a groove in said face sheet so that said cutting tool projects into said groove and engages the full thickness of said laid-up part on said hybrid tool face sheet for peripheral edge trimming of the part; and

removing the trimmed part from the mold surface.

Claim 18 (previously amended) A method of manufacturing a composite part on a hybrid tool as defined in claim 17, wherein:

said face sheet of said hybrid tool is made of graphite/bismaleimide.

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Claims 19 - 27 (canceled)

Claim 28 (previously amended) A method of making a composite part on a hybrid tool:

coating a face sheet of a hybrid tool with a release agent, the face sheet made from a composite material made on a master tool, the composite material having a mold surface the same shape and size as a surface of the part;

laying up plies of resin impregnated fabric material on the face sheet to the desired thickness;

debulking the plies in a vacuum bag with gas pressure, and curing the resin to form the part on the face sheet;

placing the hybrid tool on a machine tool bed at a position designated in a machine tool program using spud and sine key;

probing reference features on the hybrid tool to accurately establish the position of the face sheet relative to a home position of the machine tool the reference features having been transferred from corresponding reference features on the master tool;

normalizing the machine tool part program to correspond to the actual position of the hybrid tool on the machine tool bed;

operating the machine tool to rotate a cutting tool while following a cutting path along and within a groove previously cut into said face sheet so that said cutting tool projects into said groove and engages the full thickness of the laid-up part in the tool face sheet for peripheral edge trimming of the part.

Claim 29 - 35 (canceled)

Claim 36 (new) A method of manufacturing a composite part on a hybrid tool, comprising:

coating a face sheet of a hybrid tool with a release agent, the face sheet made from a composite material made on a master tool, the composite material having a mold surface the same shape and size as a surface of said part;

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laying up plies of resin impregnated fabric material to a desired thickness on a graphite/bismaleimide composite mold surface of a master tool, the mold surface being shaped and contoured to correspond to the desired shape and contour of the composite part;

debulking the plies after containing the plies within a vacuum bag adhered to the master tool;

curing the resin to form the composite part in the vacuum bag on the mold surface;

removing the vacuum bag from the cured composite part;

placing the master tool on a machine tool bed at a predetermined position aligned for subsequent machining of the composite part based upon commands from a machine tool part program;

measuring the desired positioning of the master tool by probing the position of reference features on the master tool;

normalizing the machine tool part program to correspond to the measured position of the tool;

operating the machine tool to move a cutting tool carried by the machine tool along a cutting path based upon commands from the normalized machine tool part program, the cutting tool projecting during at least a portion of the movement into a groove in the mold surface so that the cutting tool engages the full thickness of the composite part to perform peripheral edge trimming of the composite part; and

removing the trimmed composite part from the mold surface.